

NATIONAL WATER QUALITY MONITORING COUNCIL



www.waterqualitydata.us



Search over 150 million water-quality data records from States, Tribal Partners, USEPA, and USGS



2003 MOU Language

- "As the primary goal in the delivery of these data, the USGS and EPA, working with the National Water Quality Monitoring Council (NWQMC), will develop a geospatial internet based query tool. This tool should be designed to facilitate the greatest possible sharing of data from all sources to all users..."
- "The goal is that this system would search many sources of information in addition to USGS and EPA sources."

Meeting NWQMC Goals

- Comparable and reliable data
- Data management and sharing
- Collaborative monitoring & outreach
- Building towards a National Monitoring Network











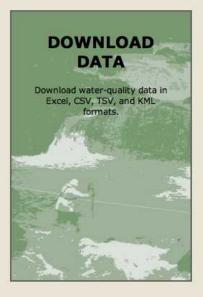
http://www.waterqualitydata.us/

NATIONAL WATER QUALITY MONITORING COUNCIL

Working Together for Clean Water

Water Quality Portal

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC).



HOW TO USE THE WQP User Guide Web Services Guide FAQs

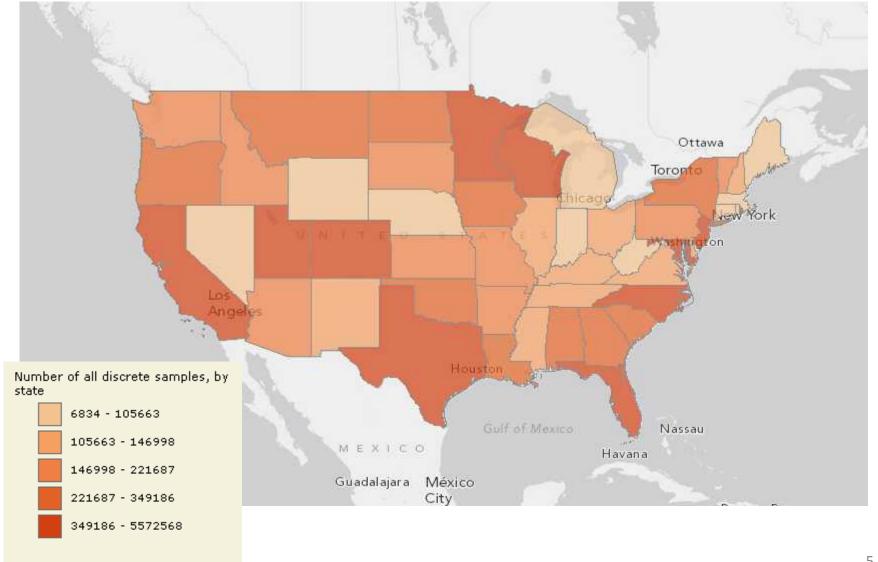




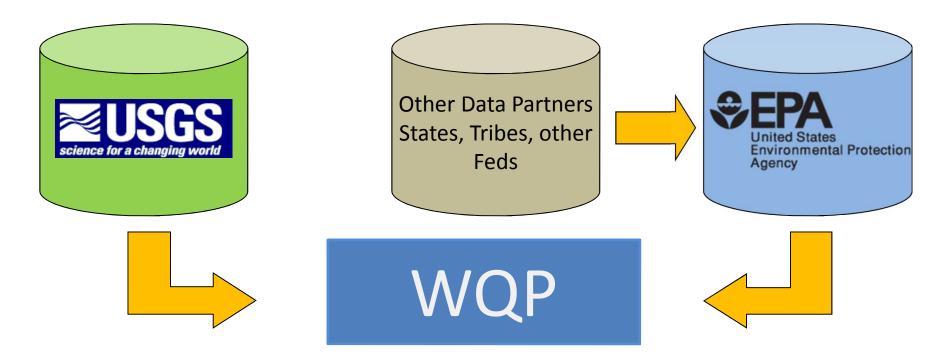




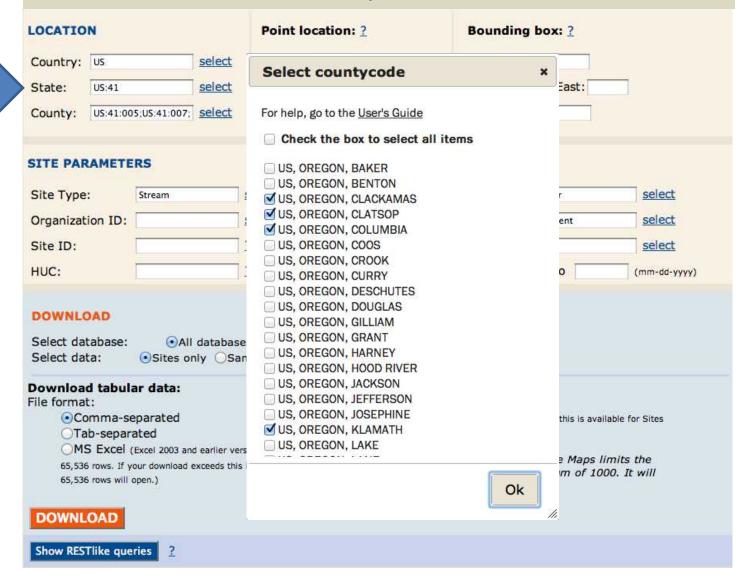
Water Quality Portal National Results Coverage STORET & NWIS

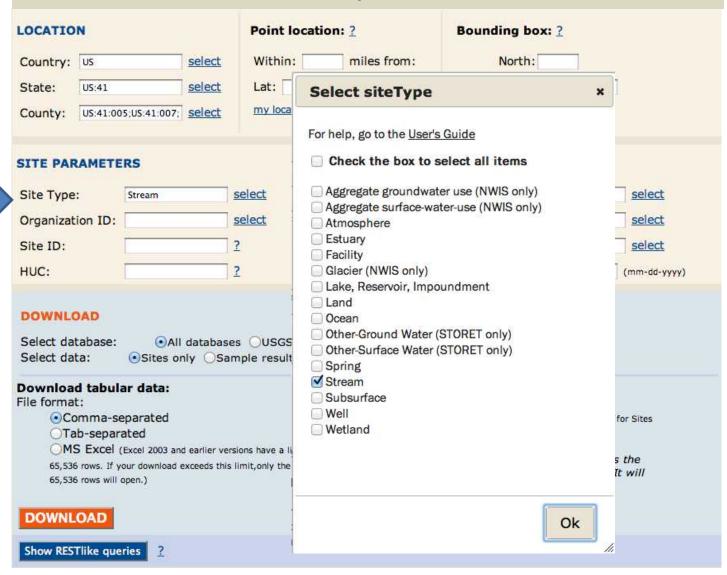


The WQP integrates publicly available water-quality data from the USGS National Water Information System (NWIS) and the EPA STOrage and RETrieval (STORET) Data Warehouse.



Country:	US	9	select Within:	miles from:	Nort	h:	
State:	US:41	S	select Lat:	Long:	West:	East:	
County: US:41:005;US:41:007; select		select my location		Sout	h:	-	
SITE PAR	AMETE	RS		SAMPLING	PARAMETER	s	
Site Type	:	Stream	select	Sample Med	ia:	Water	select
Organizat	ion ID:		select	Characterist	c Group:	Nutrient	select
Site ID:			?	Characterist	cs:	selec	
HUC: ?			Date range: from 01-2005 to (mm-			100000000000000000000000000000000000000	
DOWNLO	Section 1	⊙ All d	2 atabases OUSGS NWI			to	(mm-dd-yyy
Select da Select da Downloa File forma	tabase: ta: d tabul a	Sites onlyar data:eparated		S only OEPA STORET Download map File format:	only		

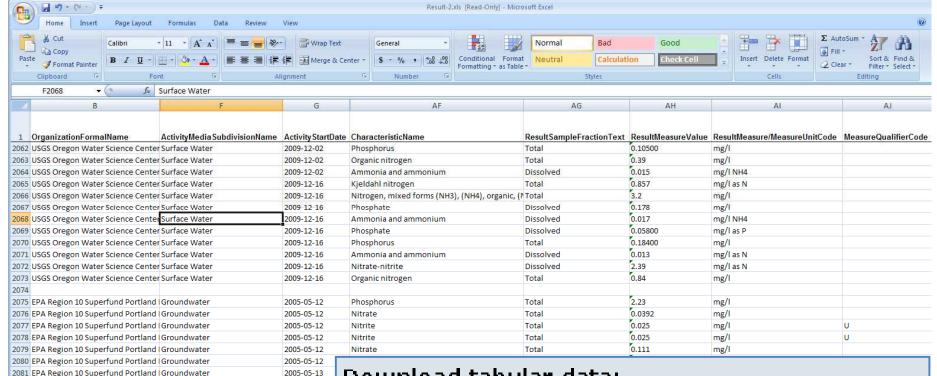




LOCATION		Point location: ?	-	Boundin	g box: ?	
Country:	s select	Within: n	niles from:	No	orth:	
State:	Select characteris	sticType	×	West:	East:	
County:		5:30	_	So	outh:	
	For help, go to the <u>User's G</u>	<u>uide</u>				
SITE PARA	Check the box to se	ect all items	MPLING	PARAMETE	RS	
Site Type:	☐ Biological (NWIS only) ☐ Information (NWIS only)		mple Me	dia:	Water	select
Organizatio	Inorganics, Major, Meta	ls (NWIS only)	aracteris	tic Group:	Nutrient	select
Site ID:	Inorganics, Major, Non-Inorganics, Minor, Meta	C 7/1/2	aracteris	tics:		select
HUC:	Inorganics, Minor, Non-Microbiological	metals	te range	: from 01-20	os to	(mm-dd-yyyy)
	 Not Assigned (STORET ✓ Nutrient 	only)				
DOWNLO	Organics, Other					
Select data Select data	Organics, PCBsOrganics, Pesticide		A STORE	T only		
	☐ Physical ☐ Radiochemical		23 12	2.5		
Pile format:	Sediment (NWIS only)	1 - 2146/1909	load ma mat:	p data:		
⊙Con○Tab	Stable Isotopes (NWIS	only)	OKML (Ke	eyhole Markup Lar	nguage - this is availa	ble for Sites
OMS			F-07775.1	Songle Mans	Google Maps lin	nits the
65,536 r 65,536 r			r of sites	shown to a n	naximum of 100	
De Control		Ok	CONTRACTOR AND ADDRESS	the query is s	siow.	
DOWNLO						
Show RESTI	ke queries 2					

DOWNLOAD Select database:	LOCATION			Point location: 2		Bounding box: ?			
County: Us:41:005;US:41:007; select my location South: SITE PARAMETERS Site Type: Stream select Sample Media: Water select Organization ID: Characteristic Group: Nutrient select Site ID: 2 Characteristics: select HUC: Date range: from 01-2005 to (mm-dd-yy) DOWNLOAD Select database: All databases USGS NWIS only EPA STORET only Select data: Sites only Sample results only Download tabular data: File format:	Country:	US		select	Within:	miles from:	North:		
SITE PARAMETERS Site Type: Stream Select Organization ID: Select Site ID: Characteristic Group: Nutrient Select Characteristics: Select HUC: Date range: from 01-2005 to (mm-dd-yy) DOWNLOAD Select database: All databases USGS NWIS only EPA STORET only Select data: Sites only Sample results only Download tabular data: File format:	State:	US:41		select	Lat:	Long:	West:	East:	
Site Type: Stream select Organization ID: Select Characteristic Group: Nutrient select Site ID: ? Characteristics: select HUC: ? Date range: from 01-2005 to (mm-dd-yy) DOWNLOAD Select database: •All databases USGS NWIS only EPA STORET only Select data: •Sites only Sample results only Download tabular data: File format:	County:	unty: US:41:005;US:41:007; select my location			So	outh:			
Organization ID: Select Characteristic Group: Nutrient Select Characteristics: Select HUC: Date range: from 01-2005 to (mm-dd-yy) DOWNLOAD Select database: Select database: Select data: Sites only Sample results only Download tabular data: File format: Select Characteristic Group: Nutrient Select Characteristic Group: Nutrient Select Download: Select Download tabular data: File format:	SITE PAR	RAMETE	RS			SAMPLING	PARAMETE	ERS	
Site ID: HUC: Date range: from 01-2005 to (mm-dd-yr) DOWNLOAD Select database: Select database: Select data: Sites only Sample results only Download tabular data: File format: Characteristics: Select Date range: from 01-2005 to (mm-dd-yr) File format: Download tabular data: File format:	Site Type	e:	Stream		select	Sample Med	dia:	Water	select
DOWNLOAD Select database: •All databases OUSGS NWIS only EPA STORET only Select data: •Sites only Sample results only Download tabular data: File format: Date range: from 01-2005 to (mm-dd-yy) Download: Download map data: File format:	Organizat	tion ID:			select	Characterist	ic Group:	Nutrient	select
DOWNLOAD Select database:	Site ID:				2	Characterist	ics:		select
Select database:	HUC:	HUC: 2			2	Date range: from 01-2005 to (mm-dd-yyyy)			
File format: File format:	Select da	tabase:				only OEPA STORET	only		
Tab-separated MS Excel (Excel 2003 and earlier versions have a limit of 65,536 rows. If your download exceeds this limit, only the first 65,536 rows will open.) Show data on Google Maps Google Maps limits the number of sites shown to a maximum of 1000. It will also time out if the query is slow.	Download tabular data: File format: • Comma-separated Tab-separated MS Excel (Excel 2003 and earlier versions have a limit of 65,536 rows. If your download exceeds this limit, only the first			File format: OKML (Keyhole Markup Language - this is available for Sites only) Show data on Google Maps Google Maps limits the number of sites shown to a maximum of 1000. It will			mits the		

LOCATION		Point location	Point location: ?		Bounding box: ?		
Country: US	ntry: Us select Within:		miles from:	miles from: North:			
State: US:	tate: US:41 <u>select</u> Lat:		Long:	West:	East:		
County: US:41:005;US:41:007; select my location			South:				
SITE PARAM	ETERS		SAMPLING	PARAMETERS			
Site Type:	Stream	select	Sample Med	dia: Wate	r <u>select</u>		
Organization	ID:	select	Characteris	tic Group: Nutr	ent <u>select</u>		
Site ID:		?	Characteris	tics:	select		
HUC:	Ť	?	Date range	from 01-2005 t	O (mm-dd-yyyy)		
Select databa Select data: Download ta	●Sites only	atabases OUSGS NWIS Sample results only		- W(1000)			
• Comma-separated			KML (Keyhole Markup Language - this is available for Sites				
OTab-separated			only)				
MS Excel (Excel 2003 and earlier versions have a limit of 65,536 rows. If your download exceeds this limit, only the first 65,536 rows will open.)			Show data on Google Maps Google Maps limits the number of sites shown to a maximum of 1000. It will also time out if the query is slow.				
DOWNLOA Show RESTlike							



Export Sites

2082 EPA Region 10 Superfund Portland | Groundwater

2083 EPA Region 10 Superfund Portland (Groundwater

2084 EPA Region 10 Superfund Portland | Groundwater

Export Results

Download tabular data:

File format:

2005-05-13

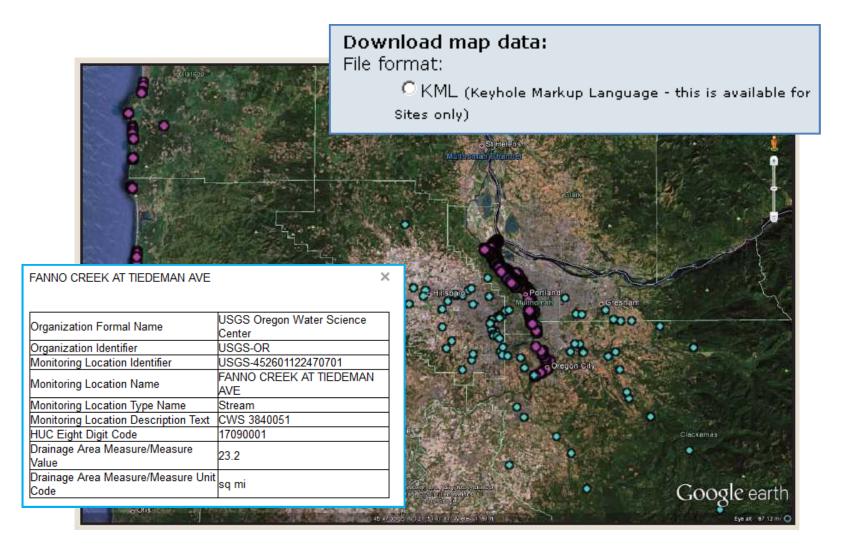
2005-05-13

2005-05-13

- Comma-separated
- Tab-separated
- OMS EXCEL (Excel 2003 and earlier versions have a limit of 65,536 rows. If your download exceeds this limit, only the first 65,536 rows will open.)

Sites Retrieval

Organization Identifier	USGS-OR
Organization Formal Name	USGS Oregon Water Science Center
Monitoring Location Identifier	USGS-452601122470701
Monitoring Location Name	FANNO CREEK AT TIEDEMAN AVE
Monitoring Location Type Name	Stream
Monitoring Location Description Text	CWS 3840051
HUC Eight Digit Code	17090001
Drainage Area	23.2
Drainage Area Unit	sq mi
Latitude	45.4336778
Longitude	-122.7853417
Country Code	US
State Code	41
County Code	67



Map output from the Water Quality Portal for all sites in the Portland, Oreg. area that have been sampled since 2005. The WQP portal was used to query for all sites (NWIS and STORET) in Clatsop, Columbia ,Tillamook, Washington, Yamhill, Multnomah, and Clackamas counties. The pink dots represent STORET and the blue dots represent NWIS sites.

U.S. Geological Survey-Water Resources Discipline

A-1220118 TPCN Volumes: 1- 15.20mL 2- 17.30mL 3- 16.50mL L-1220118 Date on FCC 4/26/11,

Sample Result Retrieval				
ActivityMediaName	Water			
ActivityStartDate	4/25/2011			
ActivityStartTime/Time	16:15:00			
ActivityStartTime/TimeZoneCode	PDT			

97119H6TU

Rising Stage

Storm

0.53

mg/l

actual

49570

COMB7

5/19/2011

0.017

mg/l

TPN, GF/F, combustion

USGS-National Water Quality Lab, Denver, CO

Long Term Method Detection Level

Nitrogen

Suspended

USGS-452601122470701

ProjectIdentifier

ActivityConductingOrganizationText

MonitoringLocationIdentifier

ActivityCommentText

HydrologicCondition

CharacteristicName

ResultMeasureValue

ResultValueTypeName

USGSPCode

LaboratoryName

AnalysisStartDate

ResultSampleFractionText

ResultMeasure/MeasureUnitCode

ResultAnalyticalMethod/MethodIdentifer

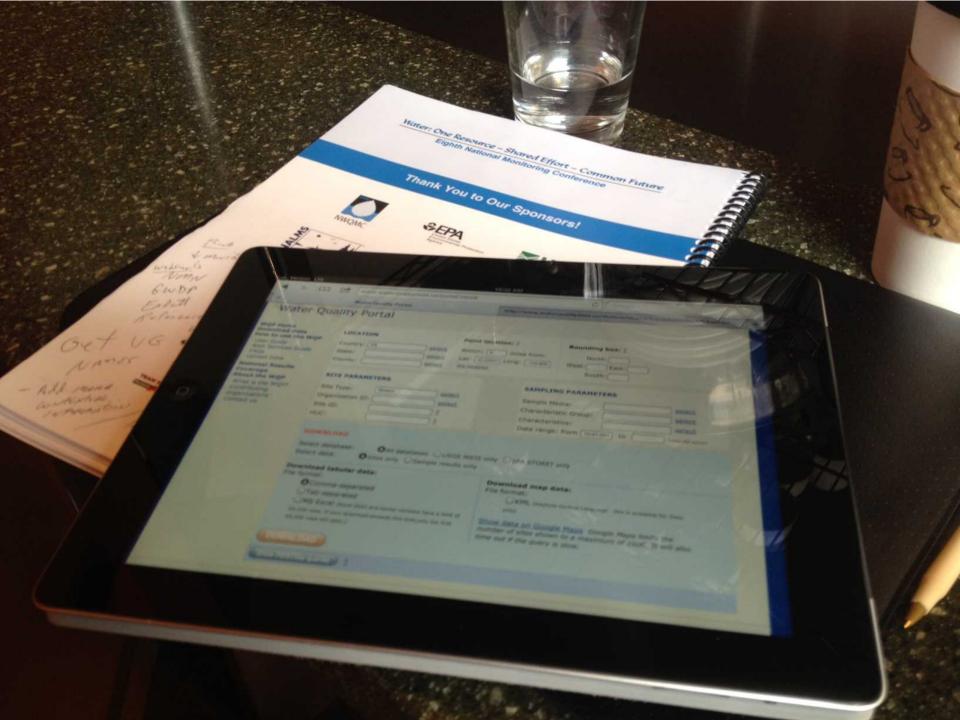
ResultAnalyticalMethod/MethodName

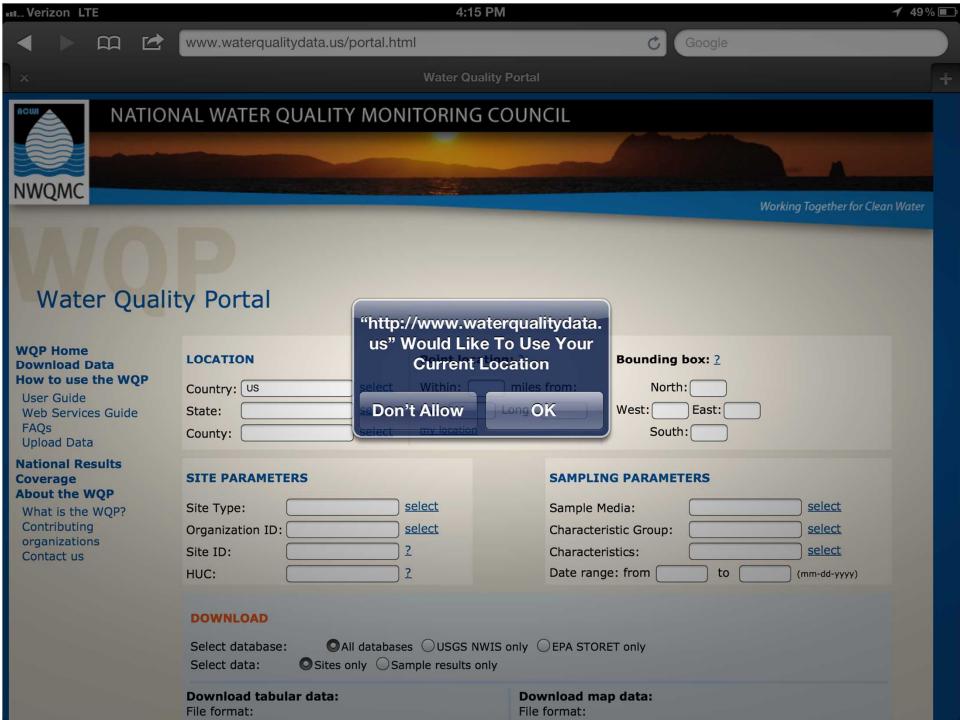
DetectionQuantitationLimitTypeName

DetectionQuantitationLimitMeasure/MeasureValue

DetectionQuantiationLimitMeasure/MeasureUnitCode

HydrologicEvent





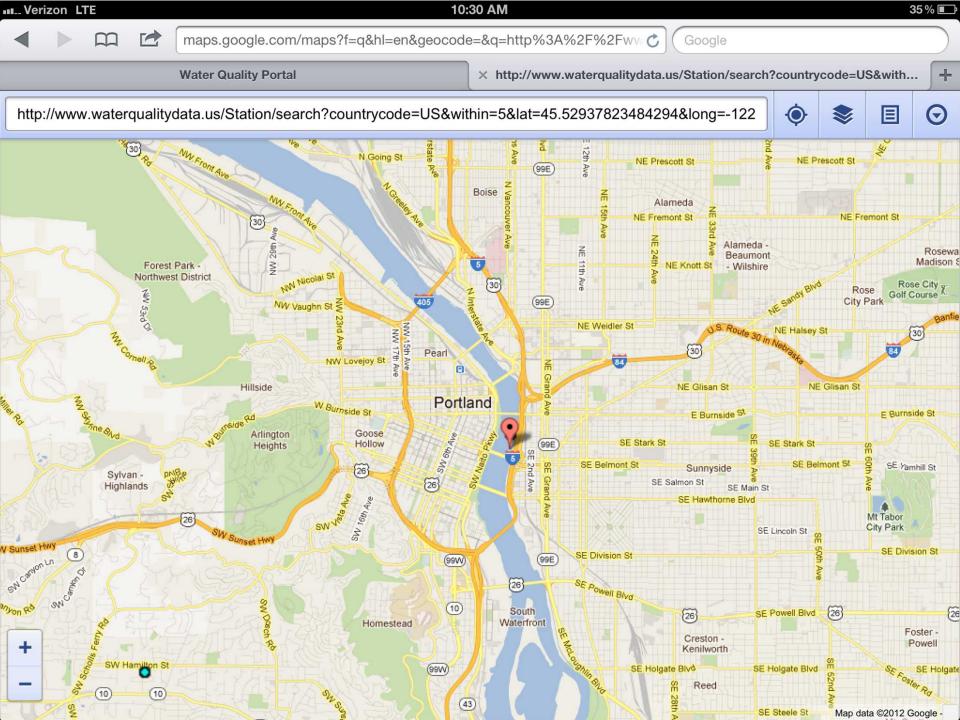
WQP Home Download Data How to use the WQP

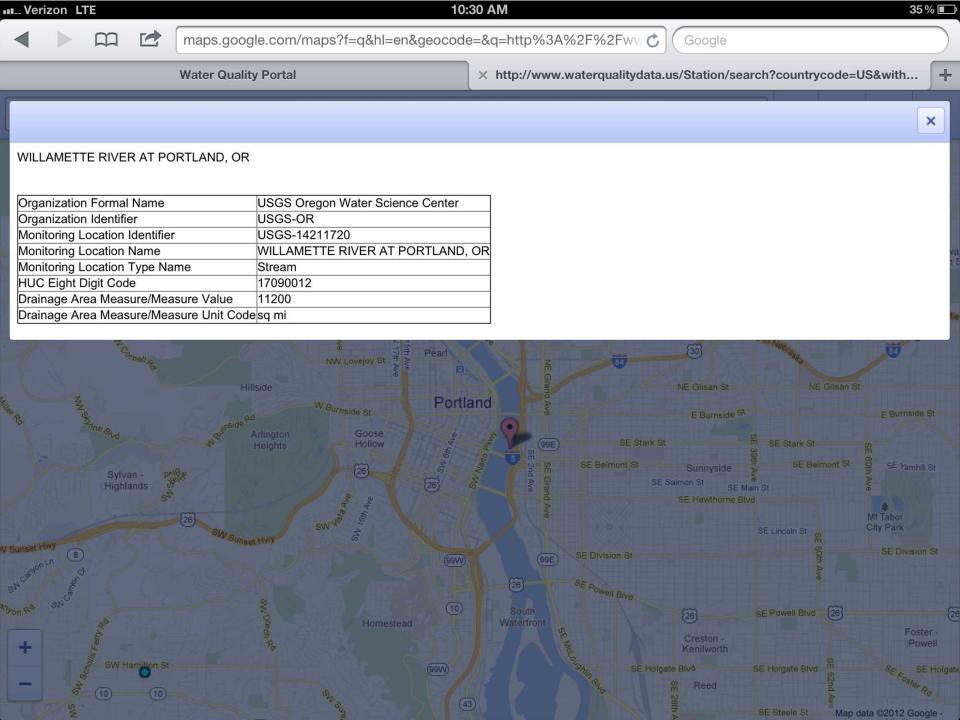
User Guide Web Services Guide FAQs Upload Data

National Results Coverage About the WQP

What is the WQP? Contributing organizations Contact us

LOCATION Country: US Select State: Select County: Select	Point location: ? Within: 5 miles from: Lat: 45.52937 Long: -122.655 my location		North: West: East: South:		
SITE PARAMETERS			NG PARAMETERS		
	<u>select</u>	Sample N			
	<u>select</u>		ristic Group: select		
	? ?	Characte	ristics: select ge: from 10-01-201 to (mm-dd-yyyy)		
Select database: OAll databases OUSGS NWIS only OEPA STORET only Select data: Sites only OSample results only					
Download tabular data:		Download map data: File format:			
File format: © Comma-separated	r	KML (Keyhole Markup Language - this is available for Sites			
○Tab-separated		only)			
MS Excel (Excel 2003 and earlier vers 65,536 rows. If your download exceeds this I 65,536 rows will open.)	imit,only the first	Show data on Google Maps Google Maps limits the number of sites shown to a maximum of 1000. It will also time out if the query is slow.			
DOWNLOAD					
Show RESTlike queries ?					





Available Documentation & Resources

- User Guide
- Web Services Guide
- FAQs
- Upload Data

HOW TO USE THE WQP User Guide Web Services Guide FAQs Upload Data

0



NATIONAL WATER QUALITY MONITORING COUNCIL

Working Together for Clean Water

Water Quality Portal User Guide

WOP Home Download Data How to use the WOP

User Guide Web Services Guide FAOs Upload Data

National Results Coverage About the WOP

What is the WOP? Contributing organizations Contact us

Explanation of portal search parameters

- Table 1. Available site types and definitions
- Table 2. Available sample media definitions
- Table 3. Available file formats

Explanation of data retrievals

- Table 4. Site retrieval elements and definitions
- Table 5. Result retrieval elements and Definitions

The Water Quality Data Portal (WOP) provides an easy way to access data stored in various large water quality databases. The WOP provides various input parameters on the form including location, site, sampling, and date parameters to filter and customize the returned results. The WQP can return site information (locations where samples were collected), or it can return sample results (analytical data of collected samples). Any field in the form left blank will cause a search for all parameters in that field. For example, if a user selects US and California for the country and state respectively, but leaves the county field blank, data will be returned for all counties in California. This is also true of the fields under "SITE PARAMETERS" and "SAMPLING PARAMETERS".

Equivalent data retrievals can be performed using web services, which have the same input parameters and predefined output formats offered through the form. For more information and examples on accessing the web services, see the Web Services Guide. Users less familiar with the standard notation used to encode a web services request may find the form more convenient. As the form is filled out, a URL can be generated by clicking on "Show RESTlike queries" at the bottom of the form. This can be used as the URL to access the data through web services.

Available Databases

USGS NWIS - Water-resources data collected from approximately 1.5 million sites in all 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. NWIS is updated every 24 h. Data recently added to NWIS may not be immediately accessible through the WOP. Data is available for each location since the beginning of the database.

USEPA STORET - A data warehouse for water quality, biological, and physical data used by state environmental agencies, EPA, other federal agencies,



NATIONAL WATER QUALITY MONITORING COUNCIL

Working Together for Clean Water

Water Quality Portal Web Services Guide

WQP Home Download Data How to use the WQP

User Guide Web Services Guide FAQs Upload Data

National Results Coverage About the WQP

What is the WQP? Contributing organizations Contact us Submitting a Web Services Request Web Service Request Examples Looking Up Domain Values through Web Services

The Water Quality Data Portal (WQP) provides an easy way to access data stored in various large water quality databases through form-based queries as well as through standalone web services. The form interface and the web services offer equivalent input parameters and output formats. Submit a web service request to bypass the WQP form interface. For more information on the WQP input parameters and data retrievals, see the <u>User Guide</u>.

Submitting a Web Services Request

The WQP web services may be queried using a RESTlike (REpresentational State Transfer) technique. This method will retrieve the same data as the WQP form when the same retrieval parameters are specified. The basic building blocks for querying the services are outlined in the following series of tables. Most non-alphanumeric characters (such as punctuation) must be "url-encoded", (for example: space is "%20").

Parameters must be appended to the base Uniform Resource Locator (URL) for the RESTlike WQP web services. The base URL is constructed differently depending on the type of information being requested. There are two options - one base URL for downloading sites and one base URL for downloading results:

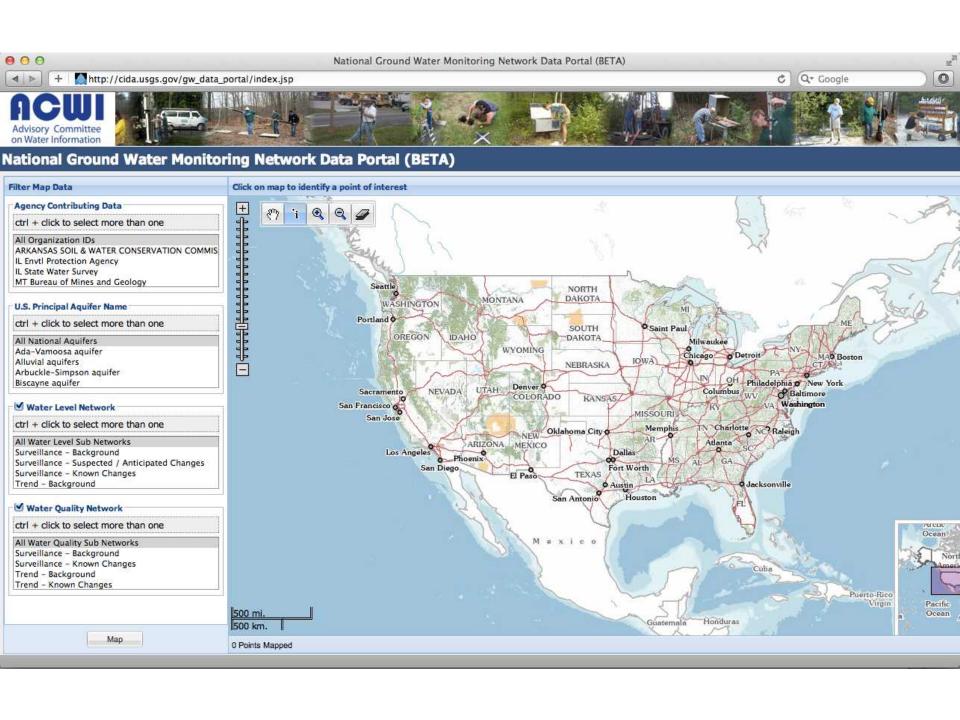
- Base URL for downloading sites -- http://www.waterqualitydata.us/Station/search?
- Base URL for downloading results http://www.waterqualitydata.us/Results/search?

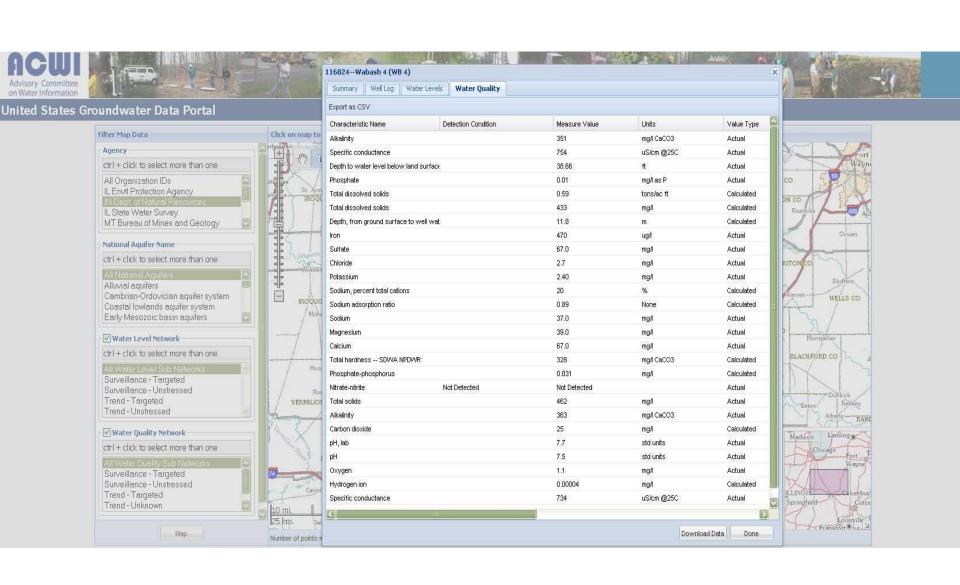
Construct a RESTlike web service query by concatenating the base URL with the desired parameters and arguments (Table 1).

Construct a RESTlike web service query by concatenating the base URL with the desired parameters and arguments (Table 1). Separate multiple parameter-argument pairs with an ampersand ("&"). Unneeded web service parameters may be omitted. If no mime type is specified, the retrieval will default to WQX-XML format. Station and Result retrieval data elements are output in a consistent format and nomenclature. See the <u>User Guide</u> for a list of elements included in the station and result retrievals.

Example Uses

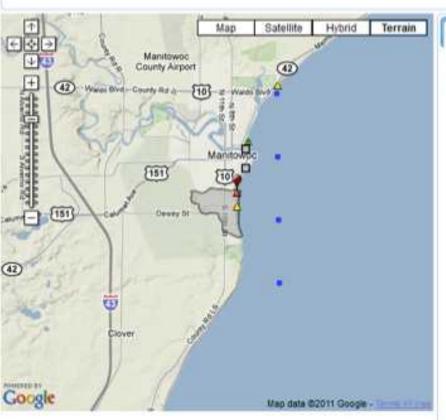


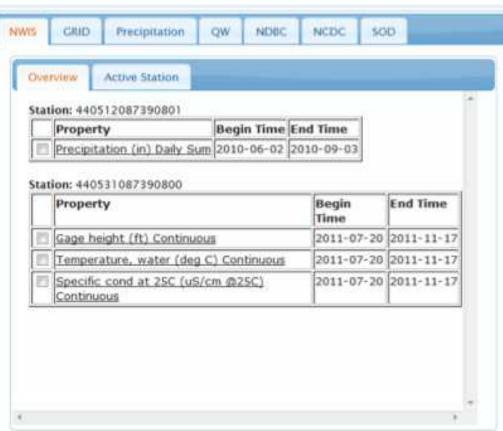




Choose Data Map Layers Beach Information Create Beach Marker

Red Arrow 44.0800000, -87.6557000 Modeling Beach ID: 38





Submit

Future Enhancements

Data Integration

- Common spatial framework (NHD)
- Common analytical method metadata (NEMI)

Outreach

- Help Desk
- Monitoring Marketplace
- Data upload (WQX)
 - State agencies & programs
 - Watershed organizations

Other Data Sources

- Additional data partners
- Real-time monitoring
- Biological and habitat data
- Legacy STORET

Geospatial

- Mapping Interface
- NHD based search

Summary

- Enhanced access to water quality monitoring data
- Common data standards and web services (WQX) improve on the historical data search and query approach
- Water managers and the public can now access integrated water quality monitoring data from multiple agencies through a single data portal
- Joint USGS/USEPA press release announced Monday, April 30.

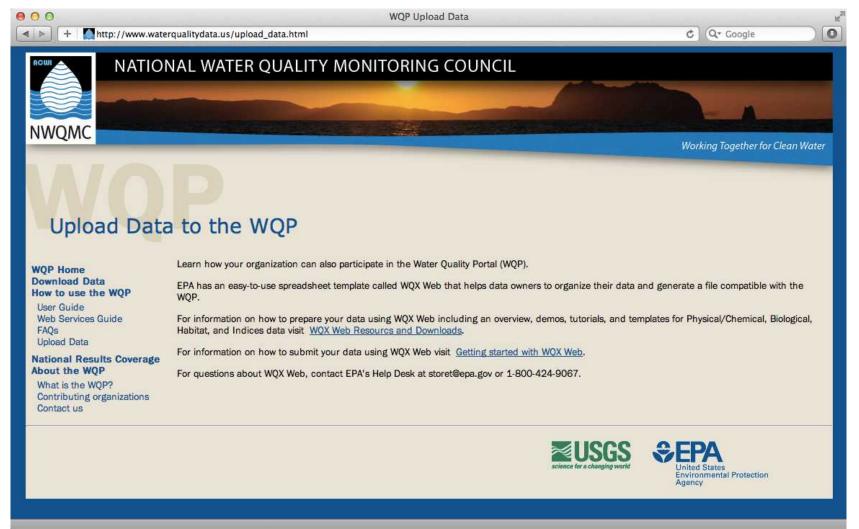
Funding & Resources for Portal Participation

- For states, tribes, watershed organizations:
 - Section 106 Grants

http://water.epa.gov/grants_funding/cwf/pollutioncontrol.cfm

- Section 319 Grants
 - http://www.epa.gov/owow keep/NPS/cwact.html
- Environmental Exchange Network Grants
 http://www.epa.gov/exchangenetwork/
- Other Water Funding Sources
 http://water.epa.gov/grants_funding/
- WQX and WQX Web available http://www.epa.gov/storet/wqx
- Help Desk (Portal and WQX) (STORET@epa.gov)

Funding & Resources for Portal Participation



Acknowledgements

- NWQMC
- National Monitoring Network
- USGS Office of Water Quality
- USEPA Office of Water